

REMARKS

Claims 1-6 are pending in this application. Claims 2-5 stand rejected and claims 1 and 6 are withdrawn from consideration. In light of the remarks set forth below, Applicants respectfully submits that each of the pending claims is in immediate condition for allowance.

Claims 2-5 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. The Examiner asserts that the limitation "precipitate the titanium" is not supported by the specification. Additionally, the Examiner argues that the limitation 1.5 hours in claim 3 is not literally supported in the specification as filed.

We note that page 9 of the specification addresses the copper alloy including titanium. Further, if the titanium content is appropriately set, it may be possible to produce a copper alloy having a high strength because the titanium content is increased so that an amount of precipitation hardening must be increased during manufacturing processes. In another embodiment, it is possible to use one of a group of elements to improve the strength of a copper titanium alloy due to precipitation hardening and solid solution hardening. See page 9, lines 4-8 and 15-20. Thus, these portions of the specifications support the limitation "precipitate the titanium."

The precipitation treatment is supported by the description, on page 9, lines 4-8 and lines 15-20. In addition, the client considers it obvious that a Cu-Ti alloy is a precipitated alloy of Ti. Furthermore, it is well known that Cu- Ti is a precipitated alloy of Ti, whereby it is obvious for the skilled person to understand this expression without the indication of "Ti". All the terms of "precipitation/precipitate", "precipitation hardening", "aging", and "age hardening" are synonymous. Therefore, the precipitation hardening corresponds to the hardening resulted from "precipitate the titanium." Finally, in the Japanese terminology used in the specification, the terms of "amount of precipitation"

and "amount (or degree) of precipitation hardening" are synonymous; however, if the Examiner is concerned with the nuance of technical terminology in English, the term "precipitation-Ti hardening" can be substituted, if required.

With respect to claim 3, we recommend traverse this rejection. Claim 3 was amended to recite that the alloy material is heated to a temperature ranging from 200°C to 700°C for a time ranging from .5 to 1.5 hours. Applicants note that this time period is less than the originally claimed time frame of 15 hours. As such, the time limit is set forth in the specification.

With respect to the rejection of claims 3 and 4 under 35 U.S.C. § 112, we note that the previous amendment to claim 3 renders the second portion of the Examiner's rejection moot. With respect to the first portion of the Examiner's rejection, it is clear that the heating temperature range applies to stress relaxation annealing because claims 3 and 4 are explicitly directed to "performing stress relaxation annealing." As such, we request withdrawal of this rejection.

Claims 2-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 62047466. We respectfully request reconsideration and withdrawal of the rejection.

Applicants note that the solution treatment and precipitation treatment or aging differ from each other in meaning. In Ti step of solution treatment, or minor additional elements are dissolved in copper (Cu) which is thus softened so as to prepare for the subsequent precipitation. Specifically, the material (e.g., Ti-Cu) is heated at 900°C for several minutes and is then rapidly cooled. This is the solution treatment.

In the step of precipitation treatment or aging, the material (e.g., Ti-Cu) is subjected to solution treatment in advance, is heated to 450°C for several hours so as to precipitate and harden Ti and Cu. See, paragraphs 29, 39, 40, and 42.

With respect to the technical terms, i.e., precipitation treatment and solution treatment, Applicant submits herewith a graph (see attached paper) entitled "Enlarged graph regarding Cu region (80-100% Cu) in Ti-Cu State" with the following comments:

Solution treatment:

A solution-treatment region (upper right green-colored region of graph), in which Ti and Cu are completely mixed together, is established by increasing temperature and is maintained; then, rapid cooling is performed. The heating temperature (which depends upon the composition) substantially ranges from 600°C to 900°C. To realize this in the industrial process, heating is performed using a furnace at the temperature ranging from 750°C to 950°C.

Precipitation treatment:

The material corresponding to the mixture of Ti and Cu, which is produced in advance by way of the solution treatment, is subjected to heating again so as to establish and maintain a precipitation-treatment region (bottom yellow-colored region of graph), in which Ti and Cu are isolated from each other. The heating temperature (which depends upon the composition) substantially ranges from 300 DC to 500°C. To realize this in the industrial process, heating is performed using a furnace at the temperature ranging from 300°C to 700 °C.

In consideration of the setup temperature of a practically-used furnace, the solution treatment and the precipitation treatment may overlap with each other in terms of the temperature ranges; however, the actually-reached temperatures of the materials

do not overlap each other. When a single material is used, the temperature of the precipitation treatment is lower than the temperature of the solution treatment. Thus, the pending claims are allowable over the cited reference.

Applicants submit the attached graph to substantiate the above position. Thus, Applicants respectfully submit that the pending claims are allowable over the cited references.

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

Dated: October 4, 2007

Respectfully submitted,

By _____
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